ONTARIO MINISTRY OF ENVIRONMENT
3693600023330

OPERATING SUMMARY

# 1974

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THE REGIONAL MUNICIPALITY OF

# HALDIMAND-NORFOLK

# CAYUGA

WATER POLLUTION CONTROL PLANT

TD
367
.A56
C39
1974
MOE

TD
367
.A56
C39
1974

Cayuga : water pollution control plant.

81485

Ontario

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# CAYUGA

# WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

## 1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

TECHNICAL SERVICES BRANCH

T. Cross, Director

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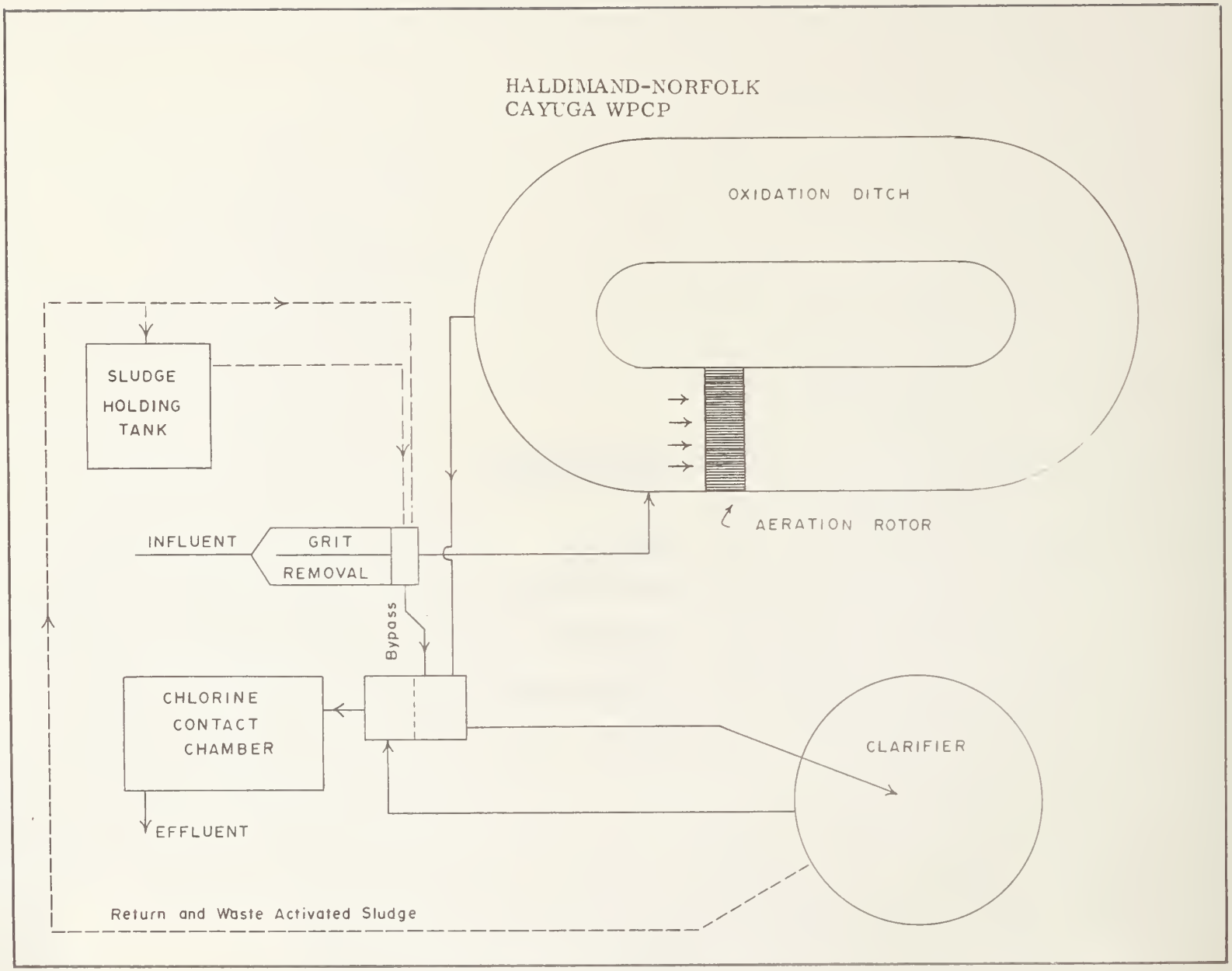

HALDIMAND-NORFOLK
CAYUGA WPCP
OXIDATION DITCH
SLUDGE
HOLDING
TANK
AERATION ROTOR
INFLUENT
GRIT
REMOVAL
Bypass
CHLORINE
CONTACT
CHAMBER
CLARIFIER
EFFLUENT
Return and Waste Activated Sludge

# DESIGN DATA

Project: Haldimand-Norfolk (Cayuga) WPCP

Project No: 1-0043-66

## DESIGN FLOW

200, 000 gpd

## GRIT REMOVAL

Type: Manually cleaned channels
Size: Two 18'6" x 1'6" x 2'6" deep

## AERATION TANK

Type: Oxidation ditch with one Pumps & Softeners Ltd. rotor
Size: 23, 400 cu. ft. or 146, 000 gal.
Detention: 65 hr
Flow Velocity: 1 fps (min)

## FINAL CLARIFIER

Type: Dorr-Oliver
Size: One 24' dia x 12' swd (33, 800 gal) overflow rate at design capacity 440 gal/ $ft^2$/day

## CHLORINATION

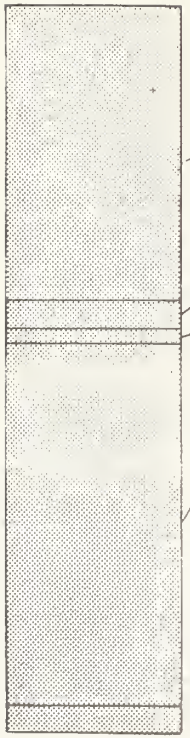
Type: Gas
Size: 50 lb/day

## CONTACT TANK

Size: 4750 gal
Detention: 34 min.

# ANNUAL COSTS

## 1974 OPERATING COSTS



- SALARIES & WAGES 39 %
- EMPLOYEE BENEFITS %
- TRANSPORTATION & COMMUNICATIONS 4 %
- SERVICES 6 %
- SUPPLIES & EQUIPMENT 51 %
- AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS
- TRANSFER PAYMENTS
- OTHER TRANSACTIONS

## YEARLY OPERATING COSTS

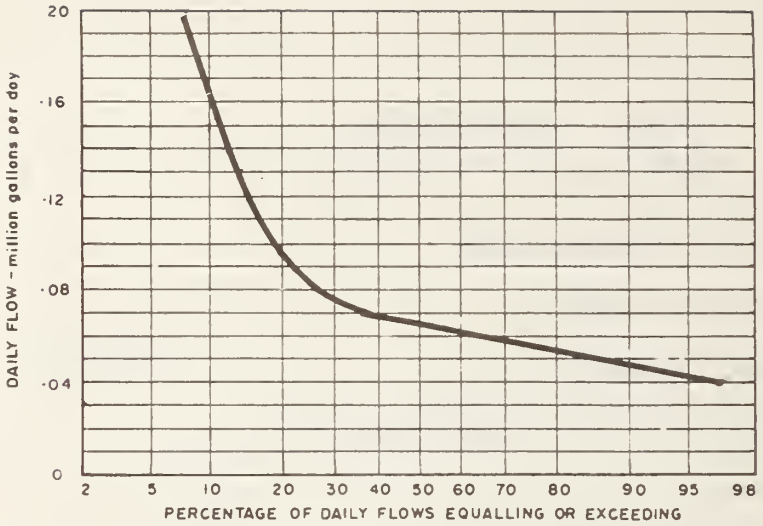
| YEAR | SEWAGE TREATED in million gallons | TOTAL OPERATING COSTS | UNIT COSTS | |
|---|---|---|---|---|
| | | | $/M G | ¢/lb BOD |
| 1974 | 31.5 | 23086 | 733 | 99 |

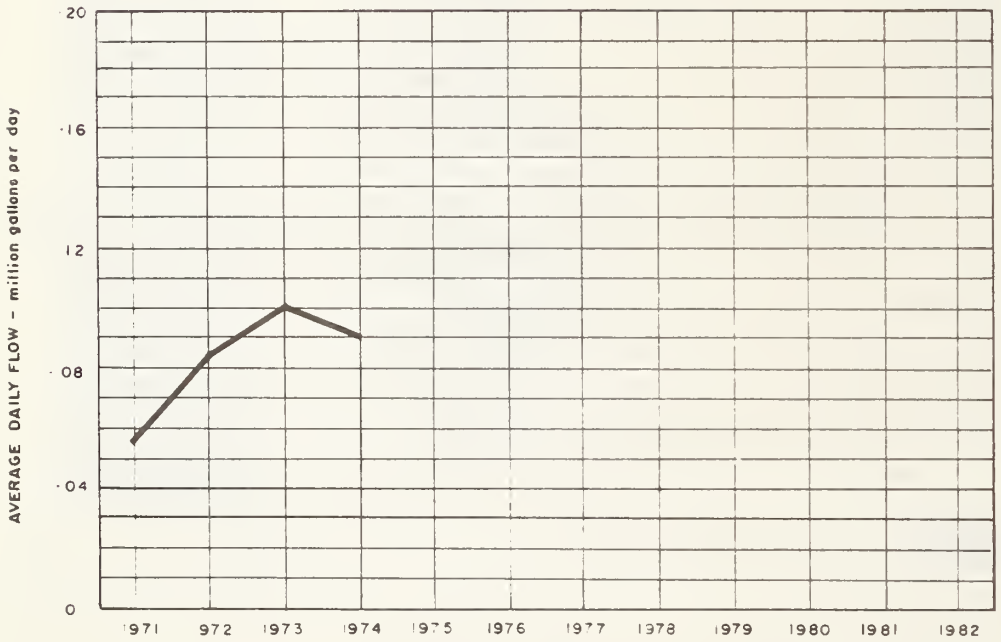
# OPERATING EXPENDITURES

| | | |
|---|---|---|
| Regular Staff | $ 5181 | $ |
| Casual (Unclassified) Staff | 3735 | |
| TOTAL SALARIES AND WAGES | | 8916 |
| TOTAL EMPLOYEE BENEFITS | | 34 |
| TOTAL TRANSPORTATION AND COMMUNICATIONS | | 834 |
| Insurance | 185 | |
| Sludge Haulage | 1978 | |
| Repairs and Maintenance | 2950 | |
| Other Services | −3634 | |
| TOTAL SERVICES | | 1479 |
| Machinery and Equipment | 4333 | |
| Chemicals | 2512 | |
| Utilities | 2877 | |
| Other Supplies and Equipment | 2101 | |
| TOTAL SUPPLIES AND EQUIPMENT | | 11823 |
| TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS | | |
| TOTAL TRANSFER PAYMENTS | | |
| OTHER TRANSACTIONS | | |
| GRAND TOTAL | GRAND TOTAL | $ 23086 |

PROCESS DATA

# FLOWS



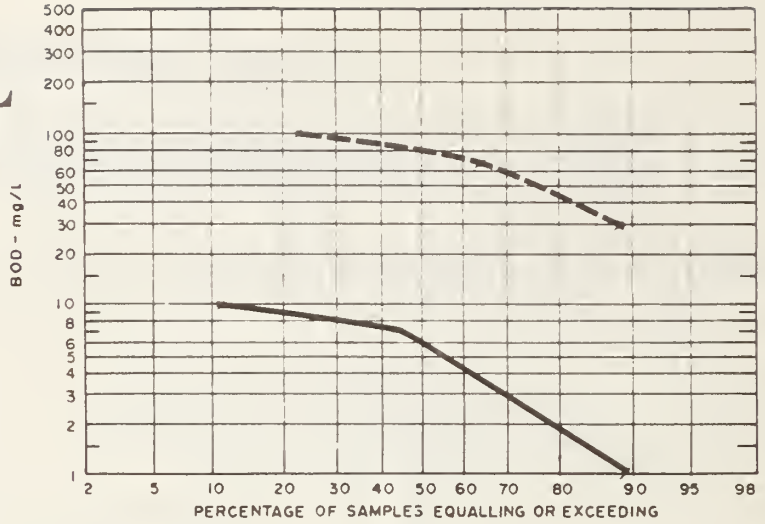



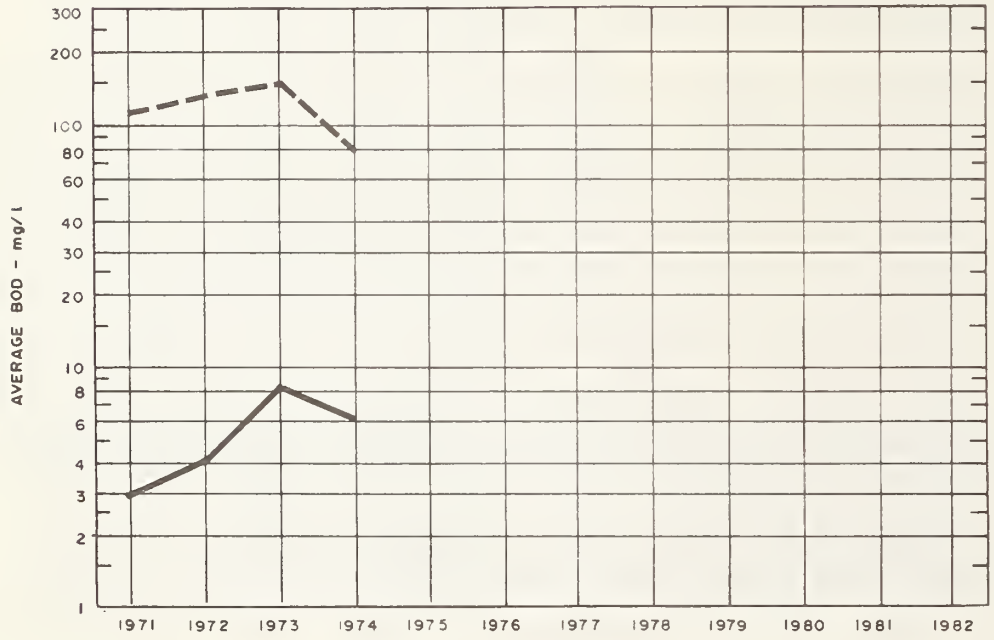

DESIGN CAPACITY 0·20 MGD

# PLANT PERFORMANCE

| MONTH | FLOWS | | | BIOCHEMICAL OXYGEN DEMAND | | | | SUSPENDED SOLIDS | | | | PHOSPHORUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL FLOW | AVERAGE DAY | MAXIMUM DAY | INFLUENT | EFFLUENT | REDUCTION | | INFLUENT | EFFLUENT | REDUCTION | | INFLUENT | EFFLUENT |
| | million gallons | mil. gal | mgd | mg/l | mg/l | % | $10^3$ pounds | mg/l | mg/l | % | $10^3$ pounds | mg/l P | mg/l P |
| JAN | 3.63 | .12 | .28 | 75 | 5 | 93 | 2.5 | 65 | 12 | 82 | 1.9 | 4.2 | .2 |
| FEB | 2.60 | .09 | .43 | 90 | 14 | 84 | 2.0 | 125 | 10 | 92 | 3.0 | 7.8 | .1 |
| MAR | 3.85 | .12 | .46 | 44 | 7 | 84 | 1.4 | 75 | 5 | 93 | 2.7 | 3.8 | .2 |
| APR | 3.79 | .13 | .24 | 50 | 7 | 86 | 1.6 | 90 | 10 | 89 | 3.0 | 4.6 | .8 |
| MAY | 5.41 | .17 | .74 | 110 | 1 | 99 | 5.9 | 115 | <15 | 87 | 5.4 | 7.7 | .2 |
| JUNE | 1.80 | .06 | .09 | | | | | | | | | 8.7 | .6 |
| JULY | 1.52 | .05 | .07 | | | | | | | | | 9.8 | .8 |
| AUG | 1.51 | .05 | .07 | | | | | | | | | .5 | 2.3 |
| SEPT | 1.60 | .05 | .08 | | | | | | | | | | 1.2 |
| OCT | 1.67 | .05 | .07 | | | | | | | | | | |
| NOV | 1.97 | .07 | .09 | 90 | 4 | 95 | 1.7 | 100 | 15 | 85 | 1.7 | 6.5 | .5 |
| DEC | 2.19 | .07 | .11 | 110 | 3 | 97 | 2.3 | 180 | 30 | 83 | 3.3 | 3.6 | .9 |
| TOTAL | 31.54 | - | - | - | - | - | | - | - | - | | - | - |
| AVG. | | .09 | MAXIMUM .74 | 80 | 6 | 93 | 1.9 | 102 | 14 | 86 | 2.3 | 6.7 | .8 |
| No. of Samples | - | - | - | 8 | 8 | - | - | 8 | 8 | - | - | 18 | 22 |

# BIOCHEMICAL OXYGEN DEMAND

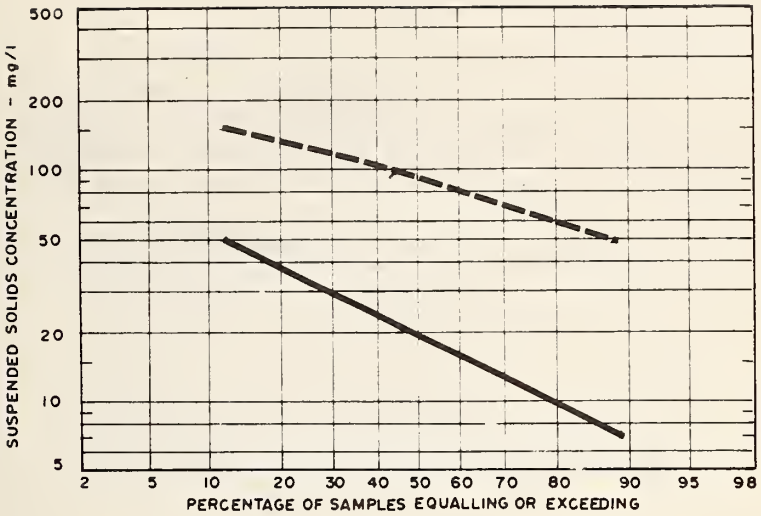


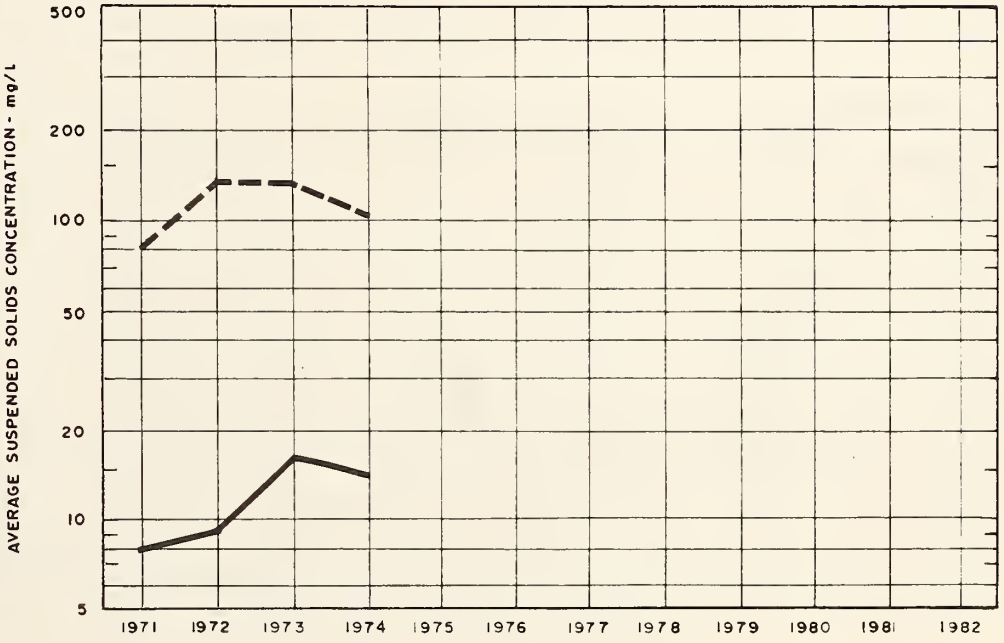




PLANT INFLUENT

PLANT EFFLUENT

# SUSPENDED SOLIDS

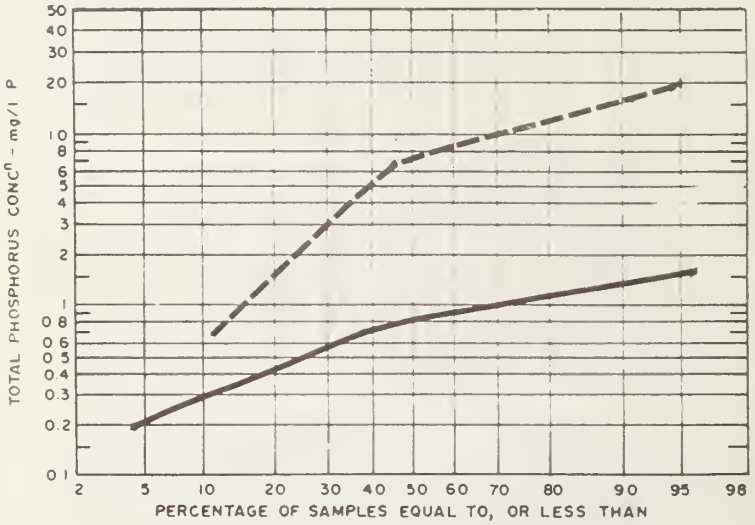


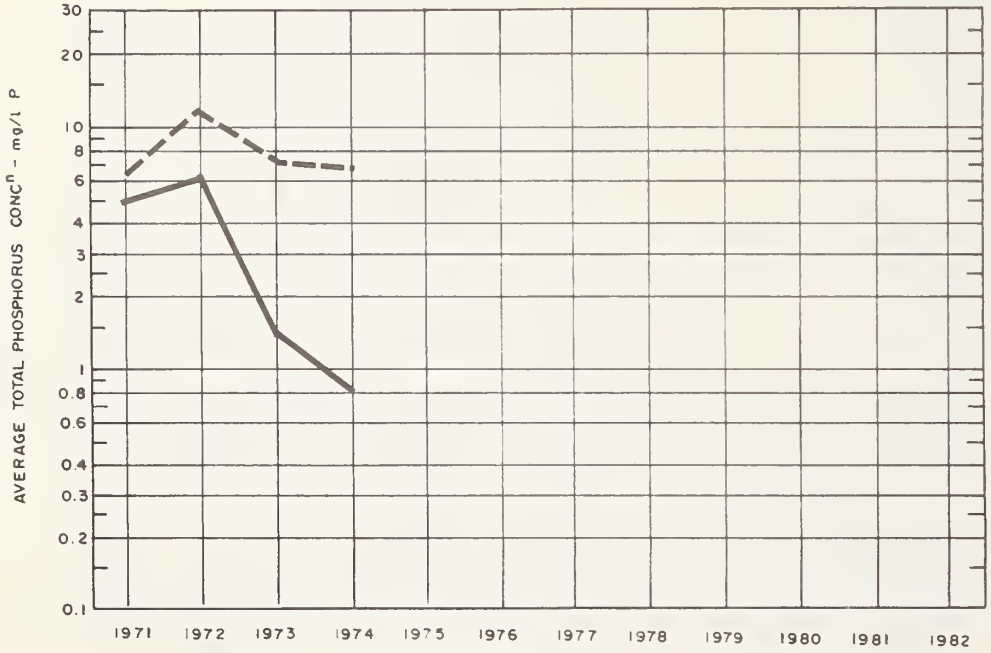




PLANT INFLUENT

PLANT EFFLUENT

# PHOSPHORUS



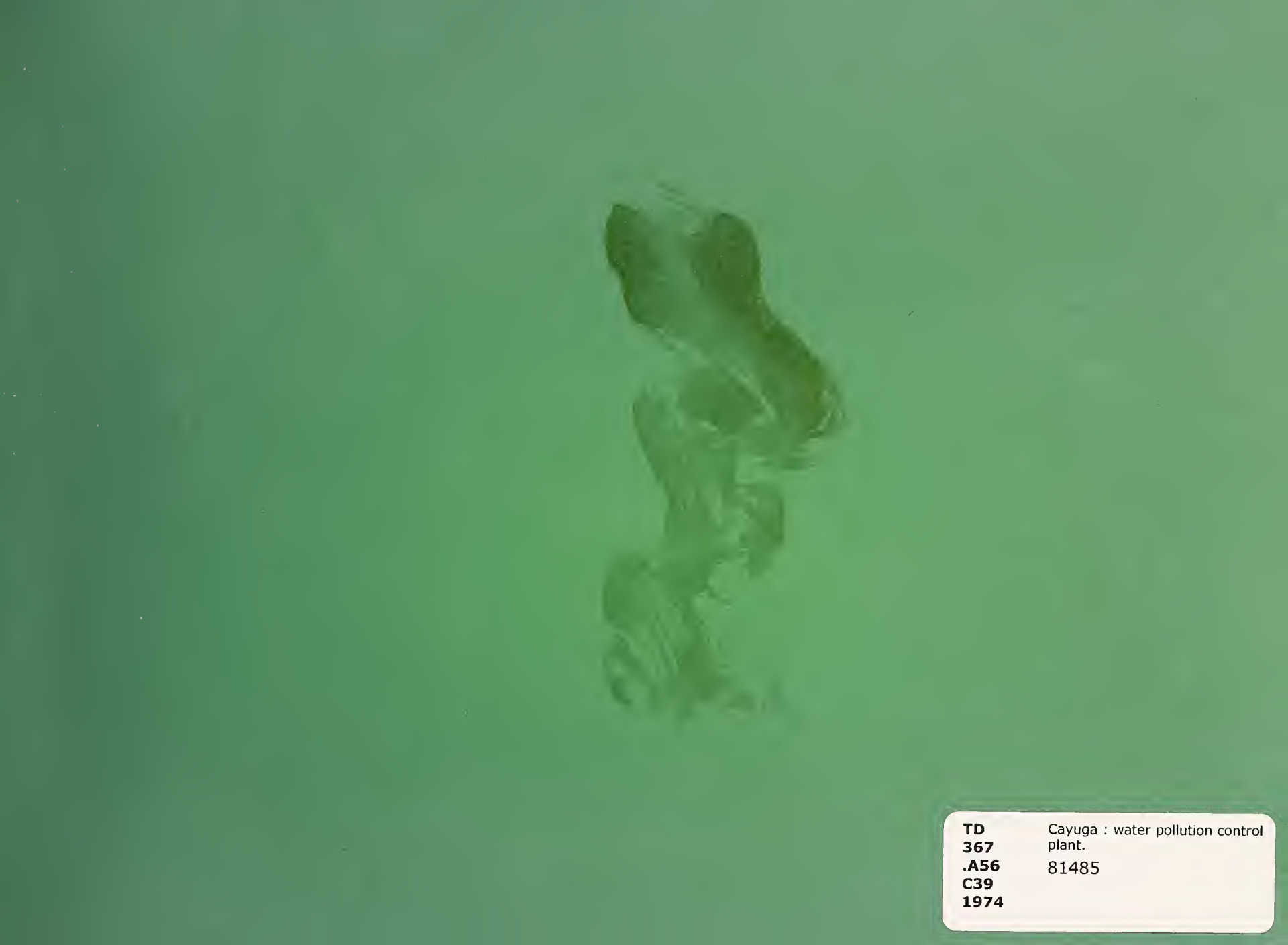




PLANT INFLUENT

PLANT EFFLUENT

# TREATMENT DATA

| MONTH | GRIT | CHLORINATION | | AERATION | | | WASTE SLUDGE | | | AEROBIC DIGESTER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QUANTITY REMOVED cubic feet | $Cl_2$ USED pounds | AVG. DOSAGE mg/l | MLSS CONC mg/l | F/M $day^{-1}$ | AIR USED 1000 ft / lb BOD | QUANTITY 10 gallons | SUSPENDED SOLIDS mg/l | VOL. SOLIDS % | QUANTITY REMOVED 10 gallons | SUSPENDED SOLIDS mg/l | VOL SOLIDS % | AMOUNT HAULED cubic yards |
| JAN | 10.0 | 200 | 5.5 | | | | | | | | | | |
| FEB | 8.0 | 332 | 12.8 | | | | | | | | | | |
| MAR | 12.0 | 248 | 6.4 | 2100 | .02 | | | | | | | | |
| APR | 10.0 | 175 | 4.6 | 4400 | .01 | | | | | | | | |
| MAY | 11.0 | 177 | 3.3 | 3200 | .04 | | | | | | | | |
| JUNE | 9.0 | 142 | 3.6 | | | | | | | | | | |
| JULY | 10.0 | 130 | 8.6 | | | | | | | | | | |
| AUG | 3.0 | 114 | 7.6 | | | | | | | | | | |
| SEPT | 2.0 | 174 | 11.6 | | | | | | | | | | |
| OCT | 2.5 | 202 | 12.1 | | | | | | | | | | |
| NOV | 2.0 | 224 | 11.4 | | | | | | | | | | |
| DEC | 2.0 | 265 | 12.1 | | | | | | | | | | |
| TOTAL | 81.5 | 2383 | – | – | – | – | | – | – | | – | – | |
| AVG. | 2.6 cu. ft/mil gal | | 7.6 | 3200 | .02 | | | | | | | | |



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